

pseudocyesis, as the differentiation between the various uterine, ovarian and tubal, and other intra-peritoneal tumors and diseases should presumably be found in any text-book of gynecology. Nor shall I in this connection occupy space with any reference to the relative importance of the several symptoms and signs of normal pregnancy, inasmuch as I have nothing to add on this point beyond the facts that may be found in my edition of *The Dublin Practice of Midwifery*. And, for similar considerations of economy of time and space I have also eliminated from this paper the history of several remarkable cases of spurious pregnancy which, from time to time, have come under my observation. The scope of the present brief communication precludes such exemplification of the foregoing remarks, or any allusion to other points of interest connected with the subject of pseudocyesis, my chief object now being to call the attention of junior practitioners to the frequency of cases in which the symptoms of pregnancy are either simulated or obscured by disease, as well as to the possibility of this condition being wilfully feigned in some instances.

In conclusion, therefore, I have merely to reiterate, what I am convinced by practical experience to be a much-needed word of warning as to the importance of greater caution than is sometimes exercised in answering, without sufficient knowledge, the often-asked question: "Is the person in whose case we are consulted actually pregnant or not?" On our reply to that apparently simple query may possibly depend the fair name of a girl, or the happiness of a wife, or even the life of a woman condemned to capital punishment, in whose case the plea of pregnancy may be raised in stay of execution. Issues so grave are not to be lightly regarded, or hastily disposed of; and in his decision thereon, as in all other obstetric difficulties, the practitioner's judgment should be arrived at and acted on "*nec temere, nec timide*."

THE DISTOMA SINENSE, A RARE FORM OF THE LIVER FLUKE, WITH REPORT OF A CASE IN WHICH IT WAS FOUND.

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IN October, 1888, in an autopsy at Charity Hospital on the body of a Chinaman, I found a rather small liver, filled with miliary gummata, and showing greatly dilated and thick-walled bile-ducts. In a casual examination there seemed to be no explanation for the dilatation of the

gall-ducts, but on more careful search for the cause, numerous small, flat lanceolate trematode worms were seen projecting here and there from the cut ends of the ducts. These appeared in large numbers with the bile when pressure was applied to the liver. They were recognized as liver flukes, and were afterward identified as a rare species of distoma (the *Distoma Sinense*), which has, I believe, not been observed in this country or Europe, and has only been found in a few cases in the East in China-men.

The history of the case was very defective, as the patient could not speak English and no Chinese interpreter was at hand. So far as could be learned, it was about as follows:

He had been an inmate of the hospital for about five months, and was suffering from a hemiplegia of the spastic type, cause unknown. There was almost complete loss of power in the left arm and leg, accompanied by considerable rigidity and irregular convulsive movements. There was only slight atrophy on this side. There had been from time to time some disturbance of the functions of the alimentary tract, associated with diarrhoea, but nothing that had attracted especial attention. Until a few days before his death he was able to use his right arm and leg, and could feed himself. He was of an exceedingly happy disposition. Two or three days before his death he developed suddenly considerable temperature, with marked pulmonary symptoms. He failed rapidly, and died with symptoms of pulmonary oedema.

The autopsy notes, in brief, were as follows:

Subject somewhat emaciated. The abdominal organs are normal in appearance, but the liver is retracted about one inch above the free border of the ribs. There are a few petechial hemorrhages underneath the surface of the pericardium. The aortic valves show lesions resulting from an old endocarditis, and on both the aortic and mitral valves are numerous vegetations produced by a recent endocarditis. The lower lobe of the right lung contains a small abscess (recent) with consolidation around it, and a spot of gangrene about one and one-fifth inches in diameter. There is also an area of consolidation involving the lower portion of the upper lobe of the left lung, and a recent pleuritis corresponding to the areas of disease in both lungs. That associated with the disease in the right lung has a fibrino-purulent exudation. The spleen is somewhat large and soft. The kidneys show lesions of an old interstitial nephritis. The liver is rather small, and is filled with an enormous number of miliary gummata. The gall-bladder is moderately dilated, and is distended with bile; and the gall-ducts, especially the smaller ones, are greatly dilated and their walls are much thickened. Pressure upon the liver after section of the organ caused the extrusion from the cut ends of the ducts of large numbers of the distoma referred to above. Forty or fifty were collected from a single longitudinal section through the liver after pressure had been applied to the organ. None were found in the gall-bladder, but one was found protruding into the duodenum from the opening of the ductus communis choledochus. The stomach and intestines are normal in appearance. The dura mater and pia-arachnoid are adherent to each other for a considerable area on the right side in the motor region of the cortex. Projecting from the

membranes in this region between the fissures of the cortex are seven gummata, varying from two-fifths to three-fifths or four-fifths of an inch in diameter. These are situated directly over the motor cortical area, involving the upper portion of the left anterior and posterior central convolutions, the paracentral lobule, and the superior parietal lobule. Around this area is a quite wide zone of recent gummatus lepto-meningitis.

In the *Lancet* of August 21, 1875, Dr. J. F. P. McConnell, of Calcutta, described a new species of liver-fluke, or distoma, found by him in the dilated gall-ducts of the liver of a Chinaman. In December, 1874, Dr. William MacGregor, of Port Louis, Mauritius, also found the same species of distoma in an autopsy on a Chinaman, and described it independently in the *Glasgow Medical Journal* of May 26, 1877. The nature of these parasites was determined by T. Spencer Cobbold, and they were by him named *Distoma Sinense*. Leuckart afterward suggested the name *Distoma Spatulatum*, but the nomenclature of Cobbold has been retained by most writers on the subject.

In the cases reported by Dr. MacGregor, in which the same parasite was found in the liver as in the case reported by Dr. McConnell, there were some peculiar nervous symptoms. Dr. MacGregor says there was a peculiar form of paralysis, unlike that found in any other disease, and which, he suggests, may be due to some chemical nerve poison, produced by the parasite and then absorbed into the circulation. In the report of these cases, Dr. MacGregor says:

"When I took charge of the hospital at Mauritius there was among the patients a Chinaman who suffered from paralysis—as his diet sheet said, from abuse of opium; examination showed that the symptoms were peculiar, different from any disease generally known here. It could not be ascertained that there was any sufficient reason for supposing that his illness was induced by opium. Within the next six months eight cases of the same disease were admitted to the hospital, three of which died and five were discharged. Autopsies were performed in the fatal cases, and the parasites were always found in large numbers."

The history in these cases, as reported by Dr. MacGregor, was about as follows: In the beginning the legs and feet were somewhat swollen and painful. These symptoms were quickly followed by paralysis of the extremities. The extensor muscles were more affected than the flexors. Wrist-drop was marked. There was decided atrophy in the legs and arms, and paralysis in some of the cases was almost complete. Sensation was not affected, and there was no paralysis in the face, tongue, or sphincter muscles. The sensorium was intact. The pulse was about 110, respiration 24, temperature 99½°. Bowels were constipated. The patient gradually grew weaker, and finally died, with symptoms of œdema of the lungs. This seemed to be the immediate cause of death in each case. The spinal cord, with the roots of the spinal nerves, were removed in the fatal cases and carefully examined, and nothing abnor-

mal was detected in them; and, in the peripheral nerves and muscles, only an incipient fatty degeneration of the muscular fibre could be detected. There were no signs of lead-poisoning.

Dr. McConnell does not refer to these symptoms described by Dr. MacGregor as being present in the case reported by him, and, so far as could be ascertained, they were not present in the one here reported. The rigidity, paralysis, and convulsive movements on the left side were, of course, fully accounted for by the gummata in the motor cortical zone of the opposite side. It seems not improbable that in Dr. MacGregor's cases the parasites were accidental accompaniments of some other disease (perhaps peripheral neuritis, although it is said that no lesions were found in the peripheral nerves); this disease, whatever its nature, being the immediate cause of death.

In my case there seemed to be no evidence that the liver flukes were the cause of death. The patient evidently died of sepsis, as was shown by the history and the post-mortem lesions.

The clinical history in Dr. McConnell's case was very incomplete, as the patient was admitted to the hospital in a comatose condition, with little previous history, and died a few hours after his admission.

The following notes are extracts from Dr. McConnell's report of the autopsy:

"The lung substance was structurally healthy. One ounce of deeply yellow-tinted serum was found in the pericardial cavity; a few dark clots and fluid blood in the right chambers of the heart; the left were almost empty. The peritoneum was healthy. The liver was large, swollen, and tense; superficially of a dark-purple color, on section paler, more dingy, or muddy-looking. Its parenchyma everywhere very soft. The large portal and hepatic veins were filled with fluid blood, and the bile-ducts particularly distinct, from their large size and distention with thick yellow bile. On incising the liver in different directions, it was noticed that small dark, vermicular-looking bodies escaped on the table, and on more careful examination these were clearly seen to protrude from the bile-ducts, which, on being dissected, were found more or less obstructed by and containing them in large numbers; all were dead. The gall-bladder was full; the cystic and common bile-ducts were patent. No distomata were found in the gall-bladder, nor were any ova found on microscopical examination of the bile and the lining membrane of this sac. Numerous ova and shreds of epithelium were found in the biliary canals. (The weight of the liver after incision was fifty-four and a half ounces.) A most remarkable and intense pigmentation of the liver parenchyma was observed in microscopical sections—not mere staining, but a positive infiltration of black pigment, granular in character, and not confined or specially distributed in the inter-lobular tissue, but accompanying the hepatic cells also within the lobules. The pigment matter appeared to be biliary rather than hæmatoid. Many of the hepatic cells were also infiltrated with fat, and the nucleus in the majority was ill-defined, or altogether indistinguishable. The *spleen* was found enlarged; its capsule stretched, slightly thickened, and opaque; its substance very dark and pulpy; weight, thirteen and three-quarters ounces. The kidneys were moderately hyperæmic and dark. The small intestines were found deeply bile-stained; the large intestines were natural. The fecal contents of both, partly solid and partly liquid, were bile-colored, but no distomata were found in them, although carefully washed and examined.

"*Remarks.*—The morbid anatomy of the liver in this case seems unequivocally to point to the pressure of the flukes in its biliary duct as the exciting cause of the acute and extensive structural degeneration of the proper structure of the organ, and of that cholæmic condition induced by the obstruction of the biliary channels, which appears to have been the immediate cause of death.

"It is noticeable that the gall-bladder itself contained no distomata, nor exhibited any evidences of having been occupied by them, while the bile-ducts were found densely crowded. I must have collected at least thirty specimens in my dissection, and numbers doubtless still remained in those portions of the liver which I have preserved entire, for hardly any duct of medium size has not been found to contain two, three, or more of these parasites."

Notwithstanding the conclusion arrived at by Drs. MacGregor and McConnell that death in the cases reported by them was due directly or indirectly to these parasites, it seems to me that a careful consideration of the clinical history and *post-mortem* lesions of their cases and the one here reported forces the conclusion that the parasites and the effect produced by them are incidental and very indirectly, if at all, instrumental in the production of death. The only point in common in all these cases was the presence of the parasites in the dilated bile-ducts. Nothing in the clinical history pointed to their existence, and their presence was only discovered in the ordinary course of examination. In Dr. McConnell's case the liver was large and soft. In Dr. MacGregor's cases and in mine it was small. In all the cases the ducts were dilated. It seems to me probable that the parasites produce little more than occasionally some obstruction of the bile-ducts, with probably icterus and some mild gastro-intestinal disturbance.

The parasites in my case were somewhat larger than those described by Dr. MacGregor, and seem to have been more deeply pigmented. Otherwise they appear to be identical with those described by him, and the following description is in part taken from his paper:

The larger specimens were a little more than four-fifths of an inch in length, by about one-eighth of an inch in width, and were lanceolate in form; the anterior extremity being narrow and the posterior broad and rounded. The color varies somewhat in different individuals, being in some considerably darker than in others. The anterior and posterior extremities and the edges are of a very dark brown or almost black color. The central portion is of a dirty yellow color and has a broad dark band in its anterior half, where the uterine folds are situated. The anterior extremity has a sucker with a cup-shaped depression, which opens into a pouch (oesophageal pouch) that divides into two simple tubes which form the alimentary tract. One of these tubes extends along either side of the worm to the posterior extremity, where it terminates in a blind end. These tubes constitute the stomach and sometimes contain small granular particles. Outside of these tubes, on either side, lie the yolk-glands which occupy about two-thirds of the length of the organism. The

whole of the central portion is occupied by the organs of reproduction. On the ventral surface of the organism, a short distance back of the anterior extremity, is situated the ventral sucker. It consists of a cup-shaped depression with a circular muscular sphincter. There is a water-vascular system, consisting of a branching tube, which commences at the caudal extremity, and passing between the blind extremities of the stomach tubes, dilates a little and then proceeds onward in a slightly crooked course about as far as the junction of the anterior two-thirds with the posterior third of the organism. It then divides into two branches which it is difficult to follow, but apparently one passes to either side to the outer side of the stomach tubes. The contents are small, highly refractive particles.

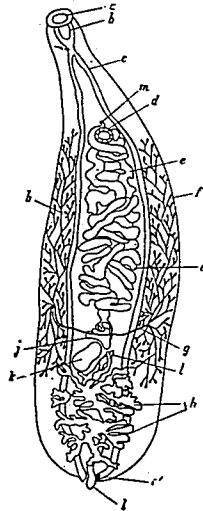
The organs concerned in reproduction occupy the greater part of the animal, and consist of the ovary, uterus and uterine pouch, testes, yolk gland ducts, and yolk-glands. The ovary is a dark, oval-shaped body, lying obliquely with regard to the long axis of the median line, from a little beyond which it extends to the stomach tube. It varies in shape and size according to its contents. Attached to the end next to the oral extremity of the animal is an irregular sacculated pouch; it would appear to contain the miniature eggs until they are sufficiently developed for extrusion into the uterus.

The ducts of the yolk-forming glands proceed straight from the uterine pouch, one to either side of the animal, and spread out into two beautifully formed pods, the yolk-glands. These yolk-glands are situated between the stomach tube and the outer edge of the animal, and extend on both sides as far forward as the ventral sucker, and as far backward as the ovary; their contents are of a dark-brown color, but after being treated for some time with a solution of caustic soda they become of a light-red color.

The uterus is a long, irregularly branched pouch, occupying nearly the whole of the central portion between the gastric tubes, and extends from the ventral sucker in front to the ovaries behind. It has a dark-brown color from the multitude of contained eggs. It opens externally at the genital orifice, just in front of the ventral sucker. The testes are situated in the posterior third of the animal between the stomach tubes. They present a beautiful dendritic appearance that varies in its details in different individuals. It is very difficult to trace the course of the vasa deferentia, but, according to Cobbold, they seem to form a common duct, which serves as an intro-mittant organ. The eggs are very small and are present in enormous numbers. They have a brown color which is due, not to the covering of the egg, but to the granules which it contains; the operculum of the egg is colorless; it is situated at one end and seems to be easily detached, as it is not seen on many eggs even before extrusion from the uterus. The secretions of the ovary, testes, and yolk-glands seem to meet in the uterine pouch and to form, by their union, a fully developed egg, which passes thence into the uterus. The outer covering of the animal is composed of a homogeneous cuticle which is reflected into the interior at the mouth of the genital orifice, and the opening of the secretory canal or water-vascular system. This outer covering presents numerous projections from its surface. Underneath it is a cellular layer and then comes a layer of muscular fibres arranged chiefly in longitudinal bundles.

Regarding the life-history of the common liver-fluke found in sheep and the manner of its entrance into the sheep's body, it seems to be about as follows:

After the escape of the eggs from their host they develop into ciliated embryos which, swimming around in the water, finally fix themselves on the surface of a snail or some similar soft-bodied water animal and bore their way into its interior. Then the embryos become transformed into *sporo-cysts*. In the *sporo-cyst* develops the *redia*, which has a digestive tract and an organ of locomotion. The *redia* escapes from the *sporo-cysts* and makes its way usually to the liver of the snail and there reaches its maturity. In the body of the adult *redia* is developed the *cercaria*. The *cercaria* has a tail for locomotion and by means of this it wiggles out of its host and then swims freely in the water. Finally



× 10.

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| a. Oral sucker. | f. Yolk-glands. |
| b. Esophageal pouch. | g. Ducts of the yolk-glands. |
| c. Intestinal tubes. | h. Testes. |
| c'. Blind extremities of the intestinal tubes. | i. Uterine pouch. |
| d. Ventral sucker. | k. Ovary. |
| e. Uterine folds. | l. Water-vascular system. |
| | m. Genital orifice. |

this fixes itself on the stems or leaves of some water plant and there becomes encysted. In this condition the larvæ are swallowed by the grazing sheep.

The life-history of a typical trematode may then be summed up as follows:

- 1st. The egg produced sexually.
- 2d. The *ciliated embryo*.
- 3d. The *sporo-cyst*, produced asexually.
- 4th. The *redia*, produced asexually.
- 5th. The *cercaria*, produced asexually.
- 6th. The *adult trematode* (Leuckart).

MacGregor, acting on the supposition that the larvæ must have been taken in on some article of food peculiar to the Chinese, examined some specimens of the *bêche de mer*, a favorite article of diet among the Chinese, and found in them forms corresponding to both the sporo-cysts and the cercaria.

This, then, is a probable explanation of the method of introduction of the larvæ into the human subject.

The accompanying illustration, prepared with great care by my assistant, Mr. Washburn, affords a good representation of the internal structure of this organism.

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AN INVESTIGATION INTO THE ETIOLOGY OF PHTHISIS.

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IV.

ON THE ETIOLOGY AND LOCAL TREATMENT OF PHTHISIS PULMONALIS.

By E. L. SHURLY, M.D.

FOLLOWING the trend of modern writings and expressions the whole subject of the etiology of phthisis pulmonalis and tuberculosis might be summed up by the statement, that these forms of disease are specific, with a specific cause, viz., the bacillus tuberculosis; every other factor being thus either swallowed up or playing a merely subsidiary part. And so dogmatic, not to say extravagant, are these numerous promulgations, that the professional mind generally has been led into this belief as a fact, that the existence of this microorganism really